Space Weather Forecast

Issued on Tuesday, 20 August 2024 at 13:10 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Minor to Moderate flares expected, chance of Strong flares, risk reducing slightly. Slight chance of G1/Minor Storms from Day 2 (21 Aug). Chance of exceeding S1/Minor Radiation Storm.

Analysis of Space Weather Activity over past 24 hours
Solar Activity: Solar activity was Moderate, with the peak flare at 19/2152UTC from a region in the southeast.
There are now twelve regions on the visible disc, with hints of another region just on the east limb. A region approaching the northwest limb is now difficult to analyse due to the viewing angle, but appears to remain a complex region with the potential for large flares. There are also two somewhat complex groups in the southeast, with both showing some minor magnetic complexity The other sunspot regions are either smaller or less complex.
A CME was seen emerging to the southeast, starting around 20/0200 UTC. This may give some glancing influence at Earth, perhaps later on Day 4 (23 Aug), but analysis of this feature is ongoing.
Solar Wind / Geomagnetic Activity: The solar wind showed a slow regime. The solar wind speed varied between 320-430 km/s. The Interplanetary Magnetic Field was mainly weak. The north-south component varied weakly but mostly southward directed. Geomagnetic activity was Quiet to Unsettled (Kp 2-3).
Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary
Solar Activity: Moderate-class flares are expected with a chance of Strong flares, however the departure of a complex region should see a slight dip in daily risks.
Solar Wind /Geomagnetic Activity: The geomagnetic forecast is of lower-than-average confidence in detail for this period. A CME occurring around 17/1030UTC has a small chance of giving glancing impacts on Day 2 (21 Aug). A further CME seen emerging around 20/0200 UTC may give some glancing influence at Earth, perhaps later on Day 4 (23 Aug), but analysis of this feature is ongoing.
Some coronal hole fast wind influence is likely early on Day 3, perhaps combining with the CME from 17 August. A second fast wind may again combine with any CME influence from 20 August to bring some increased activity later on Day 4.
Largely Quiet activity is expected at first, perhaps increasing to Unsettled to Active with a slight chance of G1/Minor Storm intervals through Days 2 to 4 under various potential CME and fast wind features.
Energetic Particles / Solar Radiation: Solar radiation is likely to persist at background levels, however there is a chance of exceeding the S1/Minor solar radiation storm level should any notable flares occur.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

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Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	10	20	20
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	Yes	80	80	75	60
Very Active	R3 to R5 X	No	25	25	20	15

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	25	25	25	20
Very Active	≥ S3 *	No	5	5	5	1
* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

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